Timothy J. Helton

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Summary

Detail oriented Software Developer with experience in the aeronautical, biomedical and mechanical engineering fields. Strengths include organization, integrity and a focus on efficient completion of quality products.

- Active: DOE Q Clearance with Sensitive Compartmented Information (SCI)
- Expired: DOD Secret Clearance (2002 - 2008, 2011 - 2015)

Skills

- Abaqus
- BitBucket
- C++
- Catia
- Confluence
- CSS
- CUBIT
- DYNA3D
- Exploratory Data Analysis
- Finite Element Modeling
- Git
- HTML
- JIRA
- LaTeX
- Linux
- Machine Learning
- MATLAB
- Microsoft Office
- Pro/Engineer
- Python
- SolidWorks
- SQL
- Statistical Inference
- Velodyne
- Vim
- VisIt

Professional Experience

Los Alamos National Laboratory — *Los Alamos NM* — **5/2015 - Present**

Senior Scientist **4/2017 - Present**

- Member of the Simulation Tools team tasked with developing software to enable the physics division analysts an increase in productivity performing stockpile stewardship calculations
- Enhance collaboration across divisions of the laboratory by linking the outputs from performance codes employed by the physics division to the commercial finite element solver Abaqus used by the advanced engineering analysis group

Senior Research and Design Engineer **5/2015 - 4/2017**

- Architect of the Engineering Common Model process designed to automate simulation generation, which was implemented on two of the four major programs for the weapons division
  - Recieved LAAP award
- Completed analysis related to structural integrity of nuclear weapons, enabling the systems engineering and production liaison to make informed programmatic decisions
- Developed modules to investigate constitutive material models, post-process data, determine joint stiffnesses and automate finite element simulations, improving the efficiency of the advanced engineering analysis group
  - Recieved Spot award
- Mentored junior analysts and conducted Python training courses to develop laboratory employees' technical abilities

Corvid Technologies — *Mooresville NC* — **3/2012 - 4/2015**

Structural Analyst

- Evaluated nonlinear ballistic intercept scenarios for the Missile Defense Agency by creating explicit finite element simulations, used to investigate specific engagements
- Developed algorithms executed in Python to automate, analyze, post-process and archive analysis, whereby reducing engineering cycle time

Red Canyon Software — *Denver CO* — **12/2010 - 2/2012**

Contract Mechanical Engineer

- Analyzed systems bracketry and hydraulic components using hand calculations and finite element techniques to contribute to the Orion Spacecraft engineering product definition
- Generated data sets for ordinance hardware with an emphasis on the Flexible Confined Detonation Cord Assemblies (FCDCA) used during fairing jettison and the Safe and Arm device

The University of Denver — *Denver CO* — **9/2009 - 12/2010**

Graduate Assistant

- Performed tensile, compression, and chemical testing using MTS hardware and software for local commercial companies and the city of Denver
- Instructor and grader for undergraduate students

Tim & Sam's Custom Woodworking — *Centennial CO* — **6/2007 - 6/2010**

Owner Operator

- Detail design and analysis of machined, sheet metal and injected molded parts for local commercial clients
- Delivered modeling and drafting created in SolidWorks
- Produced wood turnings specializing in South American and African species, which were sold at local stores

Air Methods Corporation — *Englewood CO* — **11/2008 - 9/2009**

Mechanical Engineer

- Served on the Material Review Board addressing nonconformance hardware for commercial and military programs
- Converted the company's disposition process to an electronic format reducing the signature process time to completion by 50%
- Headed the tooling effort for the Stryker and Black Hawk medical interiors resulting in a safer environment for the technicians, reduction in scrapped hardware, and increased efficiency during production
- Interfaced with suppliers to remedy engineering issues

Lockheed Martin — *Marietta GA / Littleton CO* — **6/2002 - 11/2008**

Senior Ordnance Engineer — *Littleton CO* — **4/2007 - 11/2008**

- Developed ordinance procurement specifications and oversaw qualification of flight hardware for the Orion spacecraft
- Interfaced with commercial suppliers to qualify flight hardware for the Targets and Countermeasures program

Mechanical Engineer — *Littleton CO* — **11/2005 - 4/2007**

- Generated solid models, drawings, part lists and bill of materials for primary and secondary structure in the Wing-to-Body area of all three F-35 variants
- Performed technical reviews verifying fit, form, and function for mechanical hardware with signature authority for the structures group
- Interfaced with numerous colleagues across multiple US sites and foreign countries ensuring all delivery milestones were achieved
- Authored revisions to the requirements documents related to aerodynamic performance and observability to facilitate actual hardware being fabricated
- Designed composite frame assemblies and the Transfer Orbit Thermal Shield Kapton Blankets for the MUOS satellite
- Promoted to Senior Ordnance Engineer

Aeronautical Engineer Associate *Marietta GA* **6/2002 - 11/2005**

- Provided engineering liaison support to technicians assembling the F-22 Forward Fuselage resulting in increased safety and efficiency
- Modified detail parts and assemblies to improve overall design and function, while maintaining a delivery schedule of one aircraft every six days
- Promoted to Mechanical Engineer

Sturman Industries *Woodland Park CO* **Summer 2000**

Intern

- Performed an engineering analysis of a magnetic spool valve, which included modeling the dynamic behavior in Simulink/MATLAB and doing strength and force calculations for various valve members resulting in optimized performance

Education

The University of Denver **9/2009 - 12/2010**

M.S. Mechanical Engineering

- Thesis: Investigated the fatigue behavior of a prototype spinal implant developed by SYNTHES, Inc.
  - Designed and fabricated test fixtures and locating jigs that would interface with MTS 858 Table Top test frame using SolidWorks
  - Developed test procedures using MTS MultiPurpose TestWare software
  - Conducted physical fatigue testing of multiple implants
  - Images of specimens were obtained through the use of an Olympus optical microscope and a JOEL scanning electron microscope
  - Processed mechanical testing data using MATLAB
  - Performed mesh generation of implant using HyperMesh
  - Computational analysis of implant was performed using the batch process of Abaqus
  - Developed fatigue life prediction model
- GPA 3.8/4.0

University of Colorado at Colorado Springs **1/1997 - 5/2001**

B.S. Mechanical Engineering

- 2001 Undergraduate Student of the Year
- GPA 3.5/4.0

K2 Data Science Bootcamp **1/2017 - Present**

This Bootcamp was a project focused curriculum where students gain practical coding experience in the areas of exploratory data analysis, statistical inference, and machine learning.

- Projects
  - Determine locations suitable for volunteers to obtain petition signatures in New York City by combining US Census Bureau, hospital geolocations, and subway turnstile data.
  - Classify National Basketball Association season statistics for each player back to 1950 as Hall of Fame worthy or not.
  - Analyze course surveys for Enthought Scientific Computing Solutions